

THURSDAY, JANUARY 15, 1903.

THE HOLY SHROUD OF TURIN.

Le Linceul du Christ; Étude scientifique. By Paul Vignon, Dr. è Sci. Nat. Pp. 207 and 9 photogravures. (Paris: Masson et Cie, 1902.)

The Shroud of Christ. By Paul Vignon, D.Sc. (Fr.). Translated from the French. Pp. 170; 9 photogravures and collotype plates and 38 illustrations. (Westminster: Archibald Constable and Co., Ltd., 1902). Price 12s. 6d. net.

WHETHER the relic described, figured and discussed in this handsomely got up volume is the veritable shroud which enwrapped the body of Christ is a question which need not be seriously considered in the columns of a scientific publication. Dr. Vignon seems to have convinced himself that the relic is genuine, and his object in publishing this work is (presumably) to convince his readers, or at any rate to place before them the evidence on which his conclusions are based. So far as the antiquarian evidence goes, it will suffice to remind readers of NATURE that during the recent controversy—which appears to have been the last of a series of controversies concerning the authenticity of the relic in question—Father Herbert Thurston, S.J., communicated a letter to the *Times* of April 28, from which we make a few extracts:—

"The Abbé Ulysse Chevalier claims to have proved by demonstration that the linen winding-sheet exhibited at Turin is a spurious relic manufactured in the fourteenth century, and, as the writer believes, with fraudulent intent."

"We are not, of course, in any way bound to believe that those responsible for the subsequent veneration of this alleged relic have been guilty of conscious fraud. It may even in the first instance have been fabricated without intent to deceive. . . . Just as in the case of so many facsimiles of the Holy Vails, what was in the first instance a mere copy for devotional purposes has come in time to figure as an original, the wish, no doubt, being father to the thought, but probably without any deliberate insincerity."

Thus, out of the seven chapters composing this work, there are but two which come within our province, viz., chapter vi., in which the author deals with the scientific evidence, and chapter vii. more particularly, in which he puts forward an explanation of the image which is to be seen on the shroud. The antiquarian lore of the preceding chapters has no particular interest for us, and we may add, further, that the question whether the shroud is the real article or whether it was "faked" in the fourteenth century is a point which in no way affects the discussion of Dr. Vignon's scientific evidence, because the explanation with which we have to deal is equally miraculous whether the image is some twenty centuries old or whether it is only six hundred years old.

It will be necessary, in order that our readers may judge the issue raised by Dr. Vignon's *étude scientifique*, to give a brief description of the relic, facsimile reproductions of which are given in photogravure plates showing respectively the full-length image and the head only on an enlarged scale. The impression, according to the description and figure, is that of a human body un-

draped, with hands crossed, with a long face terminating in a beard, with hair over the lips and long hair lying along each side of the face; in brief, the face of Christ as made familiar by the great masters of the old Italian school. This description, of course, applies only to the front aspect. The back view is such as would be presented by the same body if seen from behind or if it produced an impression on the linen while lying on its back, the front aspect being produced (on the assumption that it is an impression) by drawing the same shroud lengthways over the face of the prostrate body. The shroud would evidently in these circumstances (again assuming that the body impressed its image) show the two figures, front and back view, on being opened out, the figures being joined head to head, and this is declared to be the state of affairs visible on the holy shroud. The image is said to be formed of reddish-brown shades and—what is of fundamental importance to the author's theory—the lights and shades are reversed, i.e. the impression corresponds to a photographic negative. In consequence, the true aspect of the features only appears when the image is reversed by being photographed, and this is well shown in the plates referred to, from which the reader will be enabled to compare the image with its photographic reverse. There are many other marks on the shroud which are caused by rents, stains, burns, pieces clipped out, &c., all of which naturally appear in the photographs. We fail to see the importance of the over-elaborated details of description with which the author treats of these marks, unless it be to establish his claim for the authenticity of the relic from the antiquarian point of view. With this we have nothing to do here; scientifically, these marks appear to us to have no value whatever.

It remains to be pointed out that the author, so far as can be gathered from his writings, has never seen this relic himself, but has relied upon the descriptions of others, upon a water-colour copy made in 1898 and upon photographs taken by M. Pia, by M. Fino and others in the same year when the shroud was allowed to be on view for eight days. We suppose that Dr. Vignon is satisfied that the image, as it appears on the shroud, is really a negative impression and that the photographic plates have not been tampered with, although we confess that for an *étude scientifique* we should have expected some more substantial and first-hand verification of these fundamental statements. We will, however, let all this pass and meet the author half-way, and admit that there is a negative image of a human figure on the linen, and this brings us to the core of the subject, which is embodied in the query:—Apart from the question of age, how was this image produced?

Now according to the author's descriptions, which, we may repeat, are given in ridiculously minute detail, there are visible on the head and on the body itself certain marks which we are asked to believe to represent blood stains, lacerations and wounds, and we are even given an illustration of the particular kind of "flagrum" with metal buttons which the Romans used. In fact, the description as given by the New Testament writers is, if we are to accept the author's statements, so faithfully and so minutely verified by the figure on the shroud that the ordinary reader who is not thirsting for

new "evidences," but who is simply anxious to know the actual facts of the case, will probably come to the conclusion that Dr. Vignon is either the victim of credulity or that he has overdone his evidence to such an extent as to have damaged his own reputation as an expert scientific witness. The plates certainly do not tally with the details of the markings as described in the text; but here again it may be that there is much lost by the heliographic reproduction and that the author is describing the original photographic plate, which he is careful to inform us was taken by M. Pia on an Edward 50 x 60 isochromatic film sensitive to yellow, with a yellow screen, a Voigtländer lens, a diaphragm of 7 mm. diameter and an exposure of 18 minutes, the shroud being illuminated from the front by two powerful arc lights at 10 yards' distance from the surface. We will therefore again waive an objection which might be raised against the author's special pleading on behalf of the shroud, and we will admit that there are marks on the face, body and limbs in the original plate which we cannot see in the heliogravures reproduced from it—certainly no such marks are distinctly recognisable in the front view, whatever interpretation may be put on the blotched appearance on the body in the back view.

The simplest, the most obvious and the only straightforward answer to the question how the image was produced is that it is a time-worn painting—how, when or why executed being beyond our province of inquiry in these columns. Dr. Vignon, however, is so emphatic in his repudiation of this idea that he fires off a whole battery of arguments in the sixth chapter in order to demolish the sceptics who from the fourteenth century downwards have taken this not altogether unreasonable view of the relic. One or two of these arguments may be dealt with on their own merits as appealing to scientific principles. He lays very much stress, for example, upon the circumstance that the impression is a negative one, arguing therefrom that no forger could possibly have painted a figure intentionally with lights and shades reversed. May we ask why not? As an artistic feat it does not seem altogether impossible, and distinguished artists whom the reviewer has consulted inform him that, not only is such a style easy of execution, but that a forger who wished deliberately to convey the impression that the image was produced by contact of the body with the shroud would, if skilful, intentionally adopt such an artifice. Then again, it is stated (p. 123, English ed.) that the image cannot be a painting (*i.e.* in pigment) because it would have faded with the lapse of time instead of becoming darker. Again we ask why? In the first place, where is the evidence that the image has become darker? In the next place, accepting Dr. Vignon's own explanation, which shall be considered subsequently, why should a "vaporographic print" (to use the author's term) be more permanent than a painting? An organic colouring-matter developed on the linen by the hypothetical process advocated in this work is not more likely to withstand the influence of time than a painting. The argument appears to be:—It has not faded, therefore it is not a painting. It is not a painting, therefore it is a chemical (vaporographic) impression. Readers of this review will see that little value can be attached to such inferences.

NO. 1733, VOL. 67]

Having dismissed the theory of artistic forgery—at any rate to his own satisfaction—the author proceeds to demolish the view that the image is a contact impression. With this conclusion we quite agree. The only way that such an image could be produced by contact would be for the body to be uniformly coated with pigment and then for the supple shroud to have been pressed over and into every elevation and depression in the body. We are all familiar with the appearance of images produced by such means, and a glance at the figure on the shroud with all the details of the features and the hair will suffice to show that such an impression on linen, however supple, could never have been obtained by mechanical contact—even supposing the preliminary preparation of the body with pigment were conceded. Nothing short of a plaster cast could reproduce features such as appear in the plates. The martyrdom which Dr. Vignon must have suffered in allowing his face (with a false beard) to be smeared with red chalk in order to see what kind of impression could be obtained from it by such means will be credited to his zeal, although the publication of the blurred results in the form of a heliogravure plate seems quite superfluous.

Having thus shown how the image could not have been produced, the author proceeds to the development of his own hypothesis. The impression is not a photographic negative in the ordinary sense, but it is a genuine chemical impression produced by emanations from the body acting on the shroud, "sensitised" by the materials used for its impregnation. The emanations were not of the same kind as those proceeding from radio-active substances, but were more of the nature of vapours. Appeal is made to Dr. W. J. Russell's experiments in order to show the analogy between the images produced by the emanations from zinc, resinous substances, &c., and that on the shroud. Prof. Colson has cooperated with the author, and between them they have produced what by courtesy the writer of this notice proposes to call Russell-types of coins and busts (prepared by coating with zinc powder) on photographic plates.¹ Photographic reproductions of these are given in the volume under notice. From these figures, it will be seen that the impressions produced are really very poor as compared with the originals. The head on the coin, for example, is full of detail; its Russell-type, after photographic reversal, shows but a blurred and hazy image. Of course, the emanations from the body did not consist of zinc vapour, nor was the shroud coated with gelatino-bromide emulsion, so there may be no real analogy between the images—even on the "vaporographic" theory of Dr. Vignon. The emanations of the body, according to the author, proceeded from "febrile sweat" which bathed every portion of the body, hair included, and the sensitive material which enabled the shroud to receive the impression was, or may have been, a mixture of oil and aloes. There is nothing antecedently improbable in the supposition that emanations from a dead body, especially if ammoniacal as supposed by the author, may produce a coloured impression on a sensitive vegetable colouring-matter. So far there is just enough *vraisemblance* in the hypothesis to lead the

¹ Prof. Colson, by the way, has come to the conclusion that the emanations from zinc really consist of zinc particles, and it is these which penetrate the sensitive surface and produce the photographic effect. This explanation is at variance with the hydrogen peroxide theory of Russell.

unwary to think that Dr. Vignon has established his case. As his work professes, however, to be an *étude scientifique*, and as he unhesitatingly lays down the conclusion that the shroud is the real article (Popes, Bishops and Jesuits notwithstanding) and that the image is a "vaporograph" produced in the manner described, it is of considerable importance that his evidence should be critically considered.

In order to clear the ground, we will make a most liberal advance in Dr. Vignon's favour and concede for the sake of argument that such ammoniacal vapours may be emitted as required by hypothesis, and further, that the shroud may have been impregnated with some sensitive colouring-matter or colour generator capable of receiving an impression in three days. What kind of impression could be expected in these circumstances? Stretching the hypothesis to its utmost limit, certainly only a blurred human figure in outline. Now look at the image on the shroud; features with a recognisable expression, hair in detail and (as per description) blood stains, wounds and stripes. Surely, as the author himself says (p. 43), "There is no limit to hypothetical ingenuity."

A scientific witness must, however—whether his hypothesis be reasonable or otherwise—be expected to give some substantial evidence for a hypothetical belief, and the more unlikely the hypothesis, *a priori*, the stronger must that evidence be. Here is what Dr. Vignon has to offer:

"We took the plaster cast of a hand and covered it with a glove of suède kid. We then poured some of the ammoniacal solution (ammonium carbonate in water) along the wrist so that it penetrated the plaster without completely saturating the glove. The vapours were given off very regularly through the pores of the kid without staining the linen by too much water or letting the oil penetrate the damp glove.

"Working in this way we got an excellent impression of the back of the hand (on linen impregnated with olive oil and aloes). The tips of the fingers have the square aspect due to the glove having been too long. On the inside of the thumb the seams of the glove are plainly to be seen, while on the outside the image fades away rapidly and regularly. *The print is sufficiently definite to show the likeness of a finger, but too diffuse to mark the actual outlines, and this may be said of all the fingers.* (Italics ours. Compare with the hands on the figure on the shroud where the fingers are distinct.) . . .

"The print which we have obtained of this hand justifies us in asserting that under special conditions ammoniacal vapours may produce as distinct impressions of an object as those shown on the Holy Shroud" (p. 167).

Dr. Vignon's scientific conscience must really be very easily satisfied. This is the only scrap of experimental support that he furnishes. No illustration of the "vaporographed" hand is given. It is confessed that the experiment is so delicate that an attempt to repeat it gave a worse result than the first. A plaster bust of Michael Angelo refused to furnish any recognisable impression. Yet with these inconclusive results, the author virtually claims to have settled the whole history and origin of the relic. Just when he comes to the very point where scientific evidence becomes possible, he meets with what appears to the reviewer to be a failure, and then naïvely remarks:—"We shall continue these experiments if desirable, though

they only present a limited interest" (p. 167). The magnitude of the conclusions based on such lame experimental evidence justifies the condemnation of the whole work as an *étude scientifique*. To the reviewer, it reads like an antiquarian dissertation ending in a pseudo-scientific anti-climax. The conditions required by the hypothesis are not difficult to realise experimentally. There are many organic colouring-matters sensitive to ammonia gas. The fever hospitals would surely furnish the author with subjects for experiment if inanimate models of the human figure are considered unsatisfactory. If by ammoniacal or any other vaporous emanation Dr. Vignon can succeed in producing an impression as distinctly recognisable as a likeness as the image on the shroud in all its details, we will waive the question of twenty centuries' permanence and go so far as to admit that there is at any rate some justification for "vaporographic" portraiture. As the "explanation" stands now, it is purely in the region of hypothesis, and pending that rigorous verification required by science, we consider that the author's case is "not proven." If there are any scientific readers who are convinced that the conclusions in this work are satisfactorily established, we shall be disposed to credit the shroud with having wrought a greater miracle than was ever ascribed to it by the Chapter of Lirey in the fourteenth century.

R. MELDOLA.

IRISH FOLKLORE.

Traces of the Elder Faiths of Ireland. A Folklore Sketch. By W. G. Woods-Martin, M.R.I.A. Vol. i., pp. xix + 405; vol. ii., pp. xv + 438. (London: Longmans and Co., 1902.) Price 30s. net.

"MANY readers may have read works treating of some one or more epochs included in the past of which Ireland has been the scene, but up to the present," says the author, "this lengthened period has not been treated as a whole." Such a complaint can no longer be made after the publication of this able and comprehensive work, which is, as its second title indicates, "A Handbook of Irish Pre-Christian Traditions."

The consideration of the main subject of the book, the faiths of Ireland, is preceded by about 120 pages of introductory matter concerning the geographical shape of the island, the Great Ice Age and the nature of the earliest inhabitants. Excellent illustrations are given of the effects of the Great Ice Age in moulding the sides of the hills, &c. In the enumeration of the various theories as to the causes of the Ice Age, a suggestion is made as to the significance of the sun being a variable star. This fact may possibly explain the whole mystery. Though not often mentioned by the theorists, namely by those who are in favour of Sir C. Lyell's geographical explanations or of Croll's astronomical arguments based on the variability in the shape of the earth's orbit, it cannot have been outside their views. If, for instance, it be true that, in the time of Ptolemy, α Geminorum (*Castor*) was the brighter, and, therefore, presumably the hotter, star than β (Pollux), we may suppose that the inhabitants of the planetary dependents of the former are now experiencing a glacial or those of the latter a torrid epoch.

Ireland seems to have been the home of the gigantic